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## NOTICE OF ALLOWANCE AND FEE(S) DUE

008791 7590 04/21/2004

BLAKELY SOKOLOFF TAYLOR & ZAFMAN  
12400 WILSHIRE BOULEVARD, SEVENTH FLOOR  
LOS ANGELES, CA 90025

EXAMINER

JUBA JR, JOHN

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 04/21/2004

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,145	02/06/2002	Ben Vakoc	5489P018	2594

TITLE OF INVENTION: VARIOUS METHODS AND APPARATUSES FOR A TUNABLE CHROMATIC DISPERSION COMPENSATOR

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1330	\$0	\$1330	07/21/2004

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

### HOW TO REPLY TO THIS NOTICE:

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B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

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B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.  
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

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**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

# **PART B - FEE(S) TRANSMITTAL**

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008791 7590 04/21/2004

**BLAKELY SOKOLOFF TAYLOR & ZAFMAN**  
**12400 WILSHIRE BOULEVARD, SEVENTH FLOOR**  
**LOS ANGELES, CA 90025**

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,145	02/06/2002	Ben Vakoc	5489P018	2594

**TITLE OF INVENTION: VARIOUS METHODS AND APPARATUSES FOR A TUNABLE CHROMATIC DISPERSION COMPENSATOR**

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1330	\$0	\$1330	07/21/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
JUBA JR, JOHN	2872	359-484000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

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PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent); ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee
- ☐ Publication Fee
- ☐ Advance Order - # of Copies \_\_\_\_\_

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- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

Director for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Alexandria, Virginia 22313-1450.

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN 12400 WILSHIRE BOULEVARD, SEVENTH FLOOR LOS ANGELES, CA 90025			JUBA JR, JOHN	
			ART UNIT	PAPER NUMBER
			2872	
DATE MAILED: 04/21/2004				

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

**Notice of Allowability**

Application No.

10/071,145

Examiner

John Juba, Jr.

Applicant(s)

VAKOC, BEN

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE and amendment filed 04/02/2004.
2. ☒ The allowed claim(s) is/are 1-6, 8-11, 13-19, 24, 25, 27-35 and 37.
3. ☒ The drawings filed on 02 April 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance             |
|   | 9. <input type="checkbox"/> Other _____   |

### ***Reasons for Allowance***

The following is an examiner's statement of reasons for allowance: Claims 1 – 6, 8 – 11, 13 – 19, 24, 25, and 27 – 35 are allowable over the prior art for the reasons urged with respect to independent claims 1, 17, 24, 27, and 32 in Applicant's remarks of October 6, 2003.

Claim 37 includes the limitations of original claim 9 previously indicated as containing allowable subject matter. The examiner wishes to clarify that claim 37 is allowable over the prior art because the prior art fails to teach or fairly suggest a *chromatic dispersion compensation module* comprising wavelength-dependent delay path including a fiber Bragg grating particularly wherein the beam spatial orientation device *separates* an optical signal as recited and a polarization rotator is coupled to the delay path *so that first and second polarized light signals travel as recited*. That is, it is the *cooperation* of elements to form a chromatic dispersion compensation module that distinguishes over the prior art.

Additional references are cited below, among which two warrant comment with respect to claim 37. Kim, et al disclose a *multi-wavelength channel transmission filter* comprising fiber Bragg gratings, a polarization rotator, and a spatial beam orientation device (PBS) upon which a first polarized light signal ( $\odot$ ) is incident (second pass) and upon which a second polarized light signal ( $\updownarrow$ ) is incident (forward pass) to be separated. The polarization rotator is arranged so that the first polarized light signal is reflected into the gratings in a direction opposite the second polarized light signal.

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However, the components of Kim, et al are arranged *to prevent* accumulated path length delays among the wavelength channels. Thus, even though delays introduced between channels traveling the forward pass are removed in the reverse pass, one of ordinary skill would not regard the collection of gratings as comprising a *chromatic dispersion compensation* module.

Pan, et al (as cited below) disclose a polarization-mode dispersion compensation module comprising a *chirped* Bragg grating in a birefringent fiber and a polarization rotator arranged in a double-pass polarization diversity geometry. Pan, et al do refer to chromatic dispersion compensation and teach tuning the amount of dispersion compensation in accordance with the changing polarization mode dispersion. Notably, Pan, et al teach that the double-pass arrangement permits the compensation *to be doubled*. That is, the double-pass arrangement of Pan, et al is used to increase the chromatic dispersion, rather than to *decrease* the time delay differences between channels of a filter. Certainly, the chirped grating of Pan, et al would have been unsuited for the purposes of Kim, et al. Even though Kim, et al may be regarded (broadly) as disclosing another polarization diversity embodiment, there simply is *no suggestion* that their geometry would have been a suitable substitute for the geometry of Pan, et al. As set forth above, the two disclosures are directed to solving different problems. Thus, it is believed that one of ordinary skill would *not have been* lead to combine the two teachings, and that any such modification would rely only upon *impermissible* hindsight.

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Applicant's proposed substitute drawing sheets have been approved by the examiner. The addition of Figure 12b and the changes to the specification are believed to find support (at least) in original paragraph [0084] and original claims 7, 9, and 10 so as not to introduce new matter. In the first Office action on the merits, the examiner did *not* raise the objection to the construction of claims 7, 9, and 10, that was raised for claims 5, 6, 13, 14, 29, and 34. Claims 7, 9, and 10 fairly conveyed that, whatever the structure of the delay path of claim 1 (such as that disclosed in paragraph [0084]), the delay path could also *further* comprise a fiber Bragg grating, multiple resonators, or a multilayered reflector.

An informal examiner's amendment has been entered at paragraph [0057], line 5, whereby "signal exists" now reads "signal exits".

The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

Gu (U.S. Patent Appl. Pub. No. 2003/0103265 A1) discloses a dispersion compensator with multiple resonant cavities and beam spatial orientation devices.

Robinson, et al (U.S. Patent Appl. Pub. No. 2002/0191912 A1) disclose a dispersion compensator comprising a beam spatial orienting device and multiple fiber Bragg gratings.

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Pan, et al (U.S. Patent number 6,400,869) disclose a dispersion compensator having a chirped fiber Bragg grating in a birefringent fiber and disclose a double-pass geometry with polarization diversity.

Cao (U.S. Patent number 6,396,629) disclose a channel separator comprising multiple resonant cavities and a beam spatial orientation device.


Kim, et al (U.S. Patent number 6,097,861) disclose a multi-channel filter comprising multiple fiber Bragg gratings, a beam spatial orientation device and a polarization rotator arranged such that light of one polarization state is reflected into the gratings in a direction different from light of a second polarization state.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Post-allowance papers should be mailed to **Box Issue Fee**. Post-allowance papers may also be faxed to correspondence branch in PUBs. The fax number is (703) 308-5083. The **PUBs customer service** number is (703) 305-8497.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Juba whose telephone number is (571) 272-2314. The examiner can normally be reached on Mon.-Fri. 9 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Drew Dunn can be reached on Mon.- Thu., 9 - 5.

  
JOHN JUBA, JR.  
PRIMARY EXAMINER  
Art Unit 2872

April 18, 2004